

MAGNETIC SOURCE AND FERROMAGNETIC DEVICE FOR ULTRASONIC WELDING

ABSTRACT OF THE DISCLOSURE

There is provided an ultrasonic welding apparatus that includes a magnetic source and a ferromagnetic device to apply pressure to at least one component being joined during the ultrasonic welding process. The magnetic source is positioned proximate the ultrasonic transducer, and when the component to be ultrasonically welded is adjacent the ultrasonic transducer, the ferromagnetic device is positioned opposite the component from the magnetic source and the ultrasonic transducer to apply pressure. A magnetic source comprising an electromagnet provides an adjustable pressure to the component. The ferromagnetic device defines a generally spherical surface so that it advantageously remains in position relative to the magnetic source if the component is moved relative to the ferromagnetic device. In addition, the ferromagnetic device may comprise a magnet to increase the magnetic force between the magnetic source and ferromagnetic device, which increases the pressure applied to the component.

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